

REMARKS

The present application was filed on September 26, 2000 with claims 1-27. In the outstanding Office Action dated March 12, 2004, the Examiner has: (i) rejected claims 1-3, 6 and 7 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,345,303 to Knauerhase et al. (hereinafter “Knauerhase”); (ii) rejected claims 26 and 27 under §102(b) as being anticipated by U.S. Patent No. 5,504,816 to Hamilton et al. (hereinafter “Hamilton”); (iii) rejected claims 4, 5, 8, 9 and 23-25 under 35 U.S.C. §103(a) as being unpatentable over Knauerhase, in view of Hamilton; (iv) rejected claims 10-13 and 18 under §103(a) as being unpatentable over Knauerhase, in view of U.S. Patent No. 6,072,942 to Stockwell et al.; (v) rejected claims 14-17, 19, 20 and 22 under §103(a) as being unpatentable over Knauerhase and Stockwell et al., and further in view of Hamilton; and (vi) claim 21 is rejected under §103(a) as being unpatentable over Knauerhase and Hamilton, and further in view of Stockwell.

In this response, claims 1 and 26 have been amended, and claim 28 has been added. Applicants traverse the §102(e), §102(b) and §103(a) rejections for at least the reasons set forth below. Applicants respectfully request reconsideration of the present application in view of the above amendments and the following remarks.

Claims 1-3, 6 and 7 stand rejected under §102(e) as being anticipated by Knauerhase. With regard to independent claim 1, the Examiner contends that Knauerhase discloses all of the elements set forth in the claim (Office Action; page 2, last paragraph). Applicants respectfully disagree with this contention. Knauerhase is directed to “methods and devices for dynamically chaining a network proxy to a selected destination device” for servicing a client request (Knauerhase; column 1, lines 45-47). In contrast to the present invention, Knauerhase does not relate to secure transcoding methodologies which eliminate the need for a transcoding proxy to decrypt data transmitted thereto prior to being sent to a client device.

As explained in the present specification, beginning at page 3, line 20, the use of an intermediate proxy introduces a security problem since, employing a conventional approach, the data sent to the proxy must be non-encrypted in order for transcoding to be performed. Thus, the conventional scheme breaches the end-to-end security guarantee, since a third party (the proxy), other than the content provider or the client, can potentially eavesdrop on the decrypted data. The

claimed invention eliminates the need for decryption prior to transcoding the data in the proxy, thus guaranteeing end-to-end security.

Specifically, claim 1 recites a method for securely transcoding data from a content provider, including the steps of: “generating a plurality of data components at the content provider, the components being a decomposition of the data; encrypting each of the data components; transmitting the encrypted data components from the content provider to a transcoding proxy; transcoding, at the proxy, the encrypted data components; selectively manipulating the transcoded encrypted data components; and transmitting the manipulated transcoded data components generated by the transcoding proxy to the client device.” In accordance with claim 1, encryption of the data components is performed at the content provider, as implied by the subject claim since the encrypted data components are what is transmitted to the transcoding proxy. This is in contrast to Knauerhase, which clearly discloses that encryption of the data, if encryption is used at all, is performed at the proxy. Knauerhase states:

messages transmitted between network proxy 34 and the selected destination device may optionally be encrypted and/or equipped with other authentication mechanisms (for example, a digital watermark) for security purposes in accordance with known technologies. (Knauerhase; column 8, lines 11-16; emphasis added)

Knauerhase also differs from the claimed invention in that Knauerhase fails to teach or suggest the step of transcoding, at the proxy, encrypted data components, as required by claim 1. In this regard, the Examiner contends that Knauerhase discloses such step at column 3, lines 38-42 (Office Action; page 2, last paragraph). Applicants respectfully disagree with this contention. Knauerhase, at column 3, lines 38-42, states:

Using transcoder 20, HTTP remote proxy 36 is capable of transcoding (for example, adding, changing and/or deleting) content received from Internet 18 prior to returning it to a requesting network client 12, as is described further in the above-referenced Intel patent applications.

Although Knauerhase discloses a proxy capable of transcoding in the general sense, nowhere does Knauerhase teach or suggest that the content being transcoded by the proxy is encrypted data components, as expressly required by the subject claim.

Claim 1 is further distinguishable from Knauerhase in that Knauerhase fails to disclose the step of selectively manipulating the transcoded encrypted data components, as recited in claim 1. The Examiner contends that such step is disclosed in Knauerhase at column 3, lines 52-58 (Office Action; page 2, last paragraph). Applicants respectfully disagree with this contention. Not only does Knauerhase fail to teach or suggest manipulating transcoded encrypted data components, but Knauerhase clearly discloses that the transcode service providers 24 are what selectively transcode content, not the HTTP remote proxy 36, which the Examiner seems to analogize to the transcoding proxy of the claimed invention (Knauerhase; column 3, lines 49-55).

Notwithstanding the above traversal, Applicants have amended claim 1 to further clarify that the steps of transcoding and selectively manipulating the encrypted data components are performed at the proxy, without a need for first decrypting the encrypted data components. The prior art of record clearly fails to teach or suggest this feature of the claimed invention.

For at least the reasons given above, Applicants submit that claim 1 is patentable over the prior art of record. Accordingly, favorable reconsideration and allowance of claim 1 is respectfully solicited.

With regard to claims 2, 3, 6 and 7, which depend from claim 1, Applicants respectfully submit that these claims are also patentable over the prior art of record by virtue of their dependency from claim 1, which is believed to be patentable for at least the reasons set forth above. Moreover, one or more of these claims define additional patentable subject matter in their own right. For example, claim 6 further defines the step of manipulating the transcoded data components as including the step of “filtering the transcoded components by dropping at least one of the encrypted data components.” With regard to claim 6, the Examiner contends that Knauerhase discloses such additional feature at column 6, lines 16-20 (Office Action; page 3, paragraph 3). However, Applicants respectfully disagree with this contention and assert that Knauerhase fails to disclose manipulating any encrypted transcoded data components, and moreover fails to disclose a filtering step which involves dropping at least one of the encrypted data components, as required by claim 6.

Likewise, claim 7 further defines the step of manipulating the transcoded data components as including the step of “filtering the transcoded components by substituting alternative data for at

least one of the encrypted data components.” With regard to claim 7, the Examiner contends that Knauerhase discloses such additional feature at column 6, lines 16-20, and column 3, lines 52-58 (Office Action; page 3, paragraph 4). However, Applicants respectfully disagree with this contention and submit that Knauerhase fails to disclose any filtering step which involves substituting alternative data for at least one of the encrypted data components, as required by claim 7.

In view of the foregoing, Applicants submit that claims 2, 3, 6 and 7 are believed to be patentable over the prior art of record, not merely by virtue of their dependency from claim 1, but also in their own right. Accordingly, favorable reconsideration and allowance of claims 2, 3, 6 and 7 are respectfully requested.

Claims 26 and 27 stand rejected under §102(b) as being anticipated by the Hamilton reference. With regard to independent claim 26, the Examiner contends that Hamilton discloses all of the elements set forth in the claim (Office Action; page 3, last paragraph, to page 4, first paragraph). Applicants respectfully disagree with this contention. Hamilton is directed to a method and apparatus for “controlling access to digital signals received via a first communication path . . . and retransmitted over a second communication path” (Hamilton; column 2, lines 31-34). In contrast to the present invention, Hamilton does not relate to secure transcoding methodologies which eliminate the need for a transcoding proxy to first decrypt data components transmitted thereto prior to being sent to a client device.

While Applicants submit that Hamilton fails to disclose a transcoding proxy operative to selectively manipulate at least one encrypted component received from a content provider, claim 26 has been amended to further clarify that the transcoding performed by the transcoding proxy is done without the need for first decrypting any of the received data components. This feature of claim 26 is not taught or suggested by the prior art of record. Assuming the headend reencryption transcoder 58 taught by Hamilton may be analogized to the transcoding proxy of the claimed invention, Hamilton clearly discloses that the transcoder performs decryption of the received data. Specifically, Hamilton states:

The headend 40 includes a headend reencryption transcoder generally designated 58 (FIG. 2) for receiving, decrypting, reencrypting, and retransmitting the multiplex of digital program and control signals 24. (Hamilton; column 4, lines 49-52; emphasis added)

With reference to FIG. 2, Hamilton clearly illustrates that the signal received from communication link 24 is first demodulated at block 62, followed by decoding (at blocks 63) and decryption (at block 65), before any manipulation of the data occurs. This is in direct contrast to the claimed invention, which seeks to eliminate the need for decrypting the encrypted data components at the transcoding proxy so as to ensure end-to-end security, as previously stated.

For at least the reasons given above, Applicants submit that claim 26 is patentable over the prior art of record. Accordingly, favorable reconsideration and allowance of claim 26 is respectfully solicited.

With regard to claim 27, which depends from claim 26, Applicants respectfully submit that claim 27 is also patentable over the prior art of record by virtue of their dependency from claim 26, which is believed to be patentable for at least the reasons set forth above. Moreover, this claim defines additional patentable subject matter in its own right. Specifically, claim 27 further defines the transcoding proxy as selectively manipulating at least one of the encrypted data components “in accordance with priority information associated with each of the components, the priority information describing at least one of an absolute importance of a corresponding component and a relative importance of a corresponding component with respect to another component” (emphasis added). The Examiner contends that Hamilton discloses such feature at column 5, lines 4-14. Applicants respectfully disagree with this contention.

Hamilton fails to teach or suggest selectively manipulating any encrypted data components at all, and moreover fails to teach or suggest using priority information describing the absolute or relative importance of a corresponding data component to manipulate the components, as required by claim 27. Consequently, claim 27 is believed to be patentable over the prior art of record, not merely by virtue of its dependency from claim 26, but also in its own right. Accordingly, favorable reconsideration and allowance of claim 27 are respectfully requested.

Claims 4, 5, 8, 9 and 23-25 stand rejected under §103(a) as being unpatentable over Knauerhase, in view of Hamilton. The Examiner acknowledges that Knauerhase fails to disclose the additional features set forth in these claims, but contends that such features are taught by Hamilton. Applicants respectfully disagree with this contention.

With regard to claims 4, 5, 8, 9 and 23-25, which depend from claim 1, Applicants submit that these claims are patentable over the prior art of record by virtue of their dependency from claim 1, which is believed to be patentable for at least the reasons set forth above. Moreover, one or more of these claims define additional patentable subject matter in their own right. For example, claim 4 further defines the step of transmitting the encrypted data components to the transcoding proxy as including the steps of “assembling, at the content provider, at least one message, the message including at least one encrypted component portion; and transmitting the at least one message to the transcoding proxy.” The Examiner contends that such feature is disclosed in Hamilton at column 5, lines 60-65 (Office Action; page 5, paragraph 3). Applicants, however, respectfully disagree with this contention. While Hamilton may disclose combining a reencrypted digital signal with “unscrambled video and audio, audio only and/or data only signals” (Hamilton; column 5, lines 60-62), these signals are combined “at a coupler 85 for distribution over cable network 14 to subscriber ports 52 via hub 42” (Hamilton; column 5, lines 62-64), after transcoding has been performed. This is in contrast to the invention recited in claim 4, which requires that assembling the message to the encrypted data component be performed at the content provider.

In view of the foregoing, Applicants submit that claims 4, 5, 8, 9 and 23-25 are believed to be patentable over the prior art of record, not merely by virtue of their dependency from claim 1, but also in their own right. Accordingly, favorable reconsideration and allowance of claims 4, 5, 8, 9 and 23-25 are respectfully solicited.

Claims 10-13 and 18 stand rejected under §103(a) as being unpatentable over Knauerhase, in view of Stockwell. Applicants respectfully disagree with the Examiner’s contention that Knauerhase and Stockwell, even when considered in combination, teach or suggest all of the elements set forth in the subject claims. Applicants assert that these claims, which depend from claim 1, are patentable over the prior art of record by virtue of their dependency from claim 1, which is believed to be patentable for at least the reasons set forth above. Moreover, one or more of these claims define additional patentable subject matter in their own right. Accordingly, favorable reconsideration and allowance of claims 10-13 and 18 are respectfully requested.

Claims 14-17, 19, 20 and 22 stand rejected under §103(a) as being unpatentable over Knauerhase and Stockwell, in further view of Hamilton. Applicants respectfully disagree with the

Examiner's contention that Knauerhase, Stockwell and Hamilton, even when considered in combination, teach or suggest all of the elements set forth in the subject claims. Applicants assert that these claims, which depend from claim 1, are patentable over the prior art of record by virtue of their dependency from claim 1, which is believed to be patentable for at least the reasons set forth above. Moreover, one or more of these claims define additional patentable subject matter in their own right. Accordingly, favorable reconsideration and allowance of claims 14-17, 19, 20 and 22 are respectfully solicited.

Claim 21 stands rejected under §103(a) as being unpatentable over Knauerhase and Hamilton, and further in view of Stockwell. While Applicants respectfully disagree with the Examiner's contention that Knauerhase, Hamilton and Stockwell, even when considered in combination, teach or suggest all of the elements set forth in the subject claims, Applicants assert that claim 21, which depend from claim 1, is patentable over the prior art of record by virtue of its dependency from claim 1, which is believed to be patentable for at least the reasons set forth above. Accordingly, favorable reconsideration and allowance of claim 21 is respectfully requested.

Newly presented claim 28 is directed to an apparatus for securely transcoding multimedia which includes at least one transcoding proxy similar in scope to the transcoding proxy recited in claim 26. Specifically, the at least one transcoding proxy is configured for "receiving at least one encrypted component from the content provider and selectively manipulating the at least one encrypted component without a need for first decrypting the at least one encrypted component." The prior art of record fails to teach or suggest an apparatus including a transcoding proxy operable in the manner set forth in the subject claim. Accordingly, favorable consideration and allowance of claim 28 are respectfully solicited.

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In view of the above, Applicants believe that pending claims 1-28 are in condition for allowance, and respectfully request withdrawal of the §102(e), §102(b) and §103(a) rejections.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Wayne L. Ellenbogen", with a long horizontal flourish extending to the right.

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